

PATENT ABSTRACTS OF JAPAN

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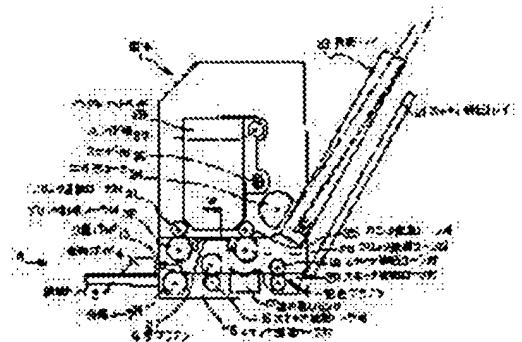
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(54) PAPER SHEET PROCESSOR

(57)Abstract:

PURPOSE: To improve the arrangements of a printer and a scanner and to prevent the mixing of printed-out paper sheets and read documents and erroneous reading by arranging the paper discharging port of a second paper sheet processing means so as to discharge paper sheets to the paper feeding tray upper side of a first paper sheet processing means and at least to the upper side of one paper width regulating member.

CONSTITUTION: A printer part and a scanner part are arranged with their paper passing areas divided into lower and upper sides in the casing 1 of a paper sheet processor. The scanner part is positioned in the lowermost part in the casing 1 and a paper feeding tray 2 for feeding a read document is projected in a side facing a user during use. A pair of paper width guides (3) and (4) for regulating the width direction roughly perpendicular to the advancing direction of the document and preventing skew carrying of the document are attached to the paper feeding tray 2 so as to slid. The printer part is positioned in the upper side of the scanner part and the advancing direction of paper is opposite the scanner part.



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CLAIMS

Claim(s)]

Claim 1] It is the paper leaf processor which piled up the 1st paper leaf processing means and the 2nd paper leaf processing means up and down, and made the conveyance direction of paper the reverse sense. Said 1st paper leaf processing means a medium tray [which was prepared in feed opening for feeding paper to paper], and medium tray top -- it is -- the feed direction and abbreviation -- with a paper width regulation means to regulate the location of the paper in a right-angled direction It is the paper leaf processor which **** and is characterized by being arranged so that the delivery opening may be the medium tray upper part of said 1st paper leaf processing means and paper may be delivered above said at least one paper width specification-part material to said 2nd paper leaf processing means.

Claim 2] A document reading means and said 2nd paper leaf processing means are a paper leaf processor characterized by said 1st paper leaf processing means being a record means in a paper leaf processor according to claim 1.

Claim 3] A record means and said 2nd paper leaf processing means are a paper leaf processor characterized by said 1st paper leaf processing means being a document reading means in a paper leaf processor according to claim 1.

Claim 4] A paper leaf processor given in claim 1 characterized by preparing feed opening in said 1st paper leaf processing means, and delivery opening in said 2nd paper leaf processing processing means in the side which faces each other with a user at the time of use thru/or any 1 term of 3.

Translation done.]

DETAILED DESCRIPTION

Detailed Description of the Invention]

0001]

[Industrial Application] This invention relates to the paper leaf processor which has two or more feeding-and-discarding paper means especially about the paper leaf processor which carries out feeding-and-discarding paper of the paper used for a printer, a scanner, etc.

0002]

[Description of the Prior Art] In recent years, regular paper-ization of the paper in which office OA equipment considered recycle of a resource as compound-ization of FAX, a copy, a printer, etc. is progressing. Meanwhile, the reading means (henceforth a "scanner") and ink jet printer of a manuscript are unified, and the device which can realize four roles of the printer of a regular paper FAX, a digital copy, and a computer and a scanner attracts attention. In order to make an installation tooth space small on a desk especially, it is desirable that it is in agreement when a printer and a scanner are considered as a sheet through type (thing which makes an every predetermined field pass sheet-like a recorded form or one manuscript) and **** of the paper to a printer and **** of the paper to a scanner project from the upper part.

0003] Moreover, if handling of the paper of a printer and each scanner is taken into consideration, a scanner will become near-side delivery with the layout of near-side feeding so that a manuscript can be easily set to feed opening, so that a print result may be in sight as for a printer. Therefore, although two trays were installed in the face of the user when the paper output tray of a printer and the medium tray of a scanner were prepared in equipment like before, the paper output tray of the printer which is one of sheets [them] was in the air, resulted in inclining to the front and jumping out, had a feeling of oppression, and trouble was in paper work.

0004] Moreover, the paper output tray of a printer is lost, if paper is made to deliver to paper on the medium tray of the scanner installed in an abbreviation horizontal near the desk top face, there will also be no feeling of oppression, if a desk top is moreover used as a part of medium tray, the die length of a medium tray serves as necessary minimum, and very compact equipment can be supplied.

0005]

[Problem(s) to be Solved by the Invention] However, when the paper output tray of the printer arranged in the medium tray of the scanner mentioned above in the upper part is lost and it uses with the paper output tray of a printer in common, there is a possibility that paper may be fed to the paper printed out depending on the relation between the paper size of a printer and the paper size of a scanner together with the manuscript of reading from scanner feeding opening.

0006] This invention is made in view of the trouble of the above-mentioned conventional technique, and aims at offering the paper leaf processor of arrangement of a printer and a scanner, and a scanner which reads a part with print-out paper cheaply certainly by amelioration of components, and can prevent a jumble of a manuscript, and incorrect reading.

0007]

[Means for Solving the Problem] A medium tray for this invention for attaining the above-mentioned purpose to be the paper leaf processor which piled up the 1st paper leaf processing means and the 2nd paper leaf processing means up and down, and made the conveyance direction of paper the reverse sense, and for said 1st paper leaf processing means feed paper to paper, It has a paper width regulation means to regulate the location of the paper in a right-angled direction. a medium tray top -- it is -- the feed direction and abbreviation - said 2nd paper leaf processing means The delivery opening is the medium tray upper part of said 1st paper leaf processing means, and it is characterized by being arranged so that paper may be delivered above said at least one paper width specification-part material.

0008] In this paper leaf processor, what is characterized by a document reading means and said 2nd paper leaf processing means of said 1st paper leaf processing means being record means, and said 1st paper leaf processing means may be characterized by a record means and said 2nd paper leaf processing means being document reading means.

0009] Furthermore, what is characterized by preparing feed opening in said 1st paper leaf processing means and delivery opening in said 2nd paper leaf processing processing means in the side which faces each other with a user at the time of use is desirable.

0010]

Function] In this invention constituted as above-mentioned, since paper is delivered above the paper width specification-part material of the 1st paper leaf processing means to the paper to which paper was delivered from delivery opening of the 2nd paper leaf processing means located in the medium tray upper part of the 1st paper leaf processing means, in order to feed paper to the 1st paper leaf processing means concerned, on a medium tray, to the paper regulated by paper width specification-part material, it shifts and is deposited. This does not blend the paper processed with the 1st paper leaf processing means, and the paper processed by the 2nd paper leaf processing means.

0011] Furthermore, if feed opening in the 1st paper leaf processing means and delivery opening in the 2nd paper leaf processing means are prepared in the front face of equipment which faces each other with a user at the time of use, a refreshed front appearance without a feeling of oppression is constituted.

0012]

Example] Hereafter, the example of this invention is explained with reference to a drawing.

0013] The appearance perspective view in which drawing 1 shows one example of the paper leaf processor of this invention, and drawing 2 are drawings of longitudinal section of the Kami Mr. processor of drawing 1.

0014] In drawing 1 and drawing 2, inside [case 1] the paper leaf processor of this example, the printer section and the scanner section divide the passage area of the paper up and down, and are arranged in it.

0015] First, the scanner section is explained.

0016] The scanner section was located in the bottom in a case 1, and was read to the side (henceforth "the front face of equipment") which faces a user at the time of use, and the medium tray 2 for feeding of a manuscript has projected it. a medium tray 2 -- the travelling direction of a manuscript, and abbreviation -- the paper width guide (left) 3 and the paper width guide (right) 4 which prevent that regulate the right-angled cross direction and a manuscript is conveyed in the state of slant are attached possible [a slide]. Since it has the device [**** / the after-mentioned] which slides the paper width guide (left) 3 and the paper width guide (right) 4 to right and left on the basis of the core of the guide width of face, another side also interlocks by moving either the paper width guide (left) 3 or the paper width guide (right) 4 by hand.

0017] Drawing which looked at the device from the background of the medium tray 2 which has the paper width guide (left) 3 and the paper width guide (right) 4 in drawing 3 is shown.

0018] The paper width guide (left) 3 is being fixed to the rack 8 and one which were connected with bosses 5 and 6 on both sides of the tray 2 while the bosses 5 and 6 fit in with **** 7 of a tray 2 and are constituted by right and left free [a slide]. On the other hand, the paper width guide (right) is being similarly fixed to a rack 11 and one free [a slide] through the bosses 9 and 10. Since that rack gear section has geared with the gear 12 supported free [rotation] in the center of a tray rear face, these racks 8 and 11 serve as a device which the rack of another side slides through a gear 12, if one rack slides. That is, if either the paper width guide (left) 3 or the paper width guide (right) 4 is made to slide, another side will also be moved to an opposite direction at the equal distance.

0019] the scanner conveyance roller pair after being separated for every sheet by the separation pad 13 and the separation roller 14 which had the cross direction regulated by drawing 2 according to return and the above-mentioned device and with which it read and the manuscript has been arranged to the case 1 interior -- it is led to 15 and 16. a scanner conveyance roller pair -- the rotation drive of 15 and 16 is carried out by the non-illustrated motor so that a manuscript may be conveyed at a predetermined reading rate in the reading sensor 17 top.

0020] The reading sensor 17 consists of the light source and a photo-electric-conversion element array, electrical-signal-izes light-and-darkness (black and white) information on the manuscript which moves at the rate of predetermined, and reads it. There is a white platen 18 for determining the brightness of the criteria of the white for reading as float prevention of a manuscript in the side which faces on both sides of the reading sensor 17 and a manuscript, this reads and grace is maintained. the -- further -- them -- a scanner delivery roller pair -- 19 and 20 are prepared and a manuscript is delivered to the scanner paper output tray 21 with which case 1 back was equipped.

0021] Next, the printer section is explained.

0022] Although the printer section is located in the upper part of the scanner section mentioned above, the travelling direction of paper is opposite to the scanner section. well-known pawl separation carries out with the pawl which is not illustrated [which has a medium tray 23 in case 1 back, is in the semicircle roller 24 and a tray 23, and starts Kami's single-sided edge] -- having -- every sheet -- a printer conveyance roller pair -- it is sent out to 25 and 26. 25 and 26 lead paper on printer conveyance roller pair the ink jet head 28 and the

printing platen 27 which counters, convey paper to every [of the ink jet head 28] print width W, and wait for the next printing.

0023] the slide shafts 29 and 30 of a pair with which the ink jet head 28 was supported in parallel with right and left (it is perpendicularly to space at drawing 2) of a case 1 – meeting – a round trip – it is movable and driving force can be given with non-illustrated a motor and a belt, and an ink droplet is flown and printed on space with print width W, moving to left-hand side from the right-hand side of the case 1 shown in drawing 1. after printing of width of face W and conveyance of Kami of width of face W are repeated by turns and end all printing of desired image information -- a printer delivery roller pair – it is discharged by 31 and 32 besides a case 1.

0024] Drawing 4 shows the physical relationship of feeding-and-discarding **** of the equipment of this example seen from the direction of A of drawing 2.

0025] The ink jet head 28 needs to take the cure of capping a nozzle part at the time of un-printing, in order to prevent getting dry and getting ink blocked in the nozzle part at a tip, or breathing out ink from all nozzles or every several printing. Therefore, as shown in drawing 4, this kind of ink plugging prevention device 33 is arranged outside the printing area by the side of a printing starting position, in order to make into the minimum the loss of the time amount which printing takes, and is made into the single-sided conveyance criteria whose above-mentioned loss does not increase with the size of a print form and which fixed the printing starting position side like.

0026] Moreover, feeding of the scanner section covers the paper size from 148mm of minimum A5 width of face to 216+2=218mm of maximum size letter width of face on main criteria by the medium tray 2, as shown in drawing 4. On the other hand, although paper is conveyed and delivered to paper on the basis of the drawing 4 Nakamigi side B in the printer section, paper size covers 148-218mm from A5 to a letter like the scanner section.

0027] The conveyance criteria B of the printer section are arranged outside the location of the right guide 4 at the time of the maximum paper size (218mm) of the scanner section, or the minimum paper size (148mm). Furthermore, there is a location at the left end of the printer maximum paper size (or the minimum paper size) B and opposite side) inside the left guide 3 at the time of the maximum paper size (or the minimum paper size) of the scanner section. By this, the paper to which paper is delivered from the printer section will fall after the right guide 4 of the scanner section.

0028] Although drawing 5 shows the situation of the equipment side face in which paper was delivered to paper from the printer section, as shown in the two-dot chain line in this drawing, since the print paper 34 to which paper was delivered shifts from a manuscript 35 and is deposited after the right guide 4, it is not mixed with the manuscript 35 conveyed to the scanner section. Even if it falls in the location where the print paper 34 exceeded the right guide 4, and separated from the case 1, when it is dragged by the scanner manuscript, it will be stopped in the right guide 4 and does not result in incorrect reading by the scanner section.

0029] Although this example gave and explained the example by which the printer section had been arranged in the upper part and the scanner section has been arranged at the lower part, if it constitutes so that the discharge manuscript of a scanner may accumulate on the feed guide of a printer also when the scanner section had been arranged in the upper part and the printer section has been arranged at the lower part, it can prevent a jumble of feeding.

0030] Furthermore, although the scanner side was made into main criteria and the printer side was made into single-sided criteria in the conveyance criteria of paper, if it is made the arrangement whose upper discharge paper may make a scanner side into single-sided criteria, and may make a printer side into main criteria conversely, or surely deposits both sides on a downward feed guide also as main criteria or single-sided criteria, the main point of this invention will not be spoiled.

0031] Moreover, although what has the scanner section and the printer section as an example of the paper leaf processor of this invention was mentioned, if the reading methods (for example, CCD reading using contraction optical system etc.) of the scanner section and the printing methods (for example, a laser beam method, a hot printing method, etc.) of the printer section include a paper leaf conveyance means, other things, such as a printing machine and a mark sheet reader, are available [printing methods / its various things are available, and] in this invention.

0032]

Effect of the Invention] In the equipment which this invention piled up the 1st paper leaf processing means (for example, scanner) and the 2nd paper leaf processing means (for example, printer) up and down as

explained above, and made the conveyance direction of paper the reverse sense By considering as the structure where the paper to which paper was delivered from the 2nd paper leaf processing means which is up falls on the paper width specification-part material of the medium tray of the 1st downward paper leaf processing means Though it is compact equipment which was excellent on the fine sight, the effectiveness that a jumble of Kami of two paper leaf processing means can be prevented cheaply certainly is done so.

Translation done.]

PRIOR ART

Description of the Prior Art] In recent years, regular paper-ization of Kami to whom office OA equipment considered recycle of a resource as compound-ization of FAX, a copy, a printer, etc. is progressing. Meanwhile, the reading means (henceforth a "scanner") and ink jet printer of a manuscript are unified, and the device which can realize four roles of the printer of a regular paper FAX, a digital copy, and a computer and a scanner attracts attention. In order to make an installation tooth space small on a desk especially, it is desirable that it is in agreement when a printer and a scanner are considered as a sheet through type (thing which makes an every predetermined field pass sheet-like a recorded form or one manuscript) and Kami's *** to a printer and Kami's **** to a scanner project from the upper part.

0003] Moreover, if handling of Kami of a printer and each scanner is taken into consideration, a scanner will become near-side delivery with the layout of near-side feeding so that a manuscript can be easily set to feed opening, so that a print result may be in sight as for a printer. Therefore, although two trays were installed in the face of the user when the paper output tray of a printer and the medium tray of a scanner were prepared in equipment like before, the paper output tray of the printer which is one of sheets [them] was in the air, resulted in inclining to the front and jumping out, had a feeling of oppression, and trouble was in paper work.

0004] Moreover, the paper output tray of a printer is lost, if paper is made to deliver to paper on the medium tray of the scanner installed in an abbreviation horizontal near the desk top face, there will also be no feeling of oppression, if a desk top is moreover used as a part of medium tray, the die length of a medium tray serves as necessary minimum, and very compact equipment can be supplied.

Translation done.]

EFFECT OF THE INVENTION

[Effect of the Invention] In the equipment which this invention piled up the 1st paper leaf processing means for example, scanner) and the 2nd paper leaf processing means (for example, printer) up and down as explained above, and made the conveyance direction of paper the reverse sense By considering as the structure where the paper to which paper was delivered from the 2nd paper leaf processing means which is up falls on the paper width specification-part material of the medium tray of the 1st downward paper leaf processing means Though it is compact equipment which was excellent on the fine sight, the effectiveness hat a jumble of Kami of two paper leaf processing means can be prevented cheaply certainly is done so.

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TECHNICAL PROBLEM

Problem(s) to be Solved by the Invention] However, when the paper output tray of the printer arranged in the medium tray of the scanner mentioned above in the upper part is lost and it uses with the paper output tray of a printer in common, there is a possibility that paper may be fed to the paper printed out depending on the relation between the paper size of a printer and the paper size of a scanner together with the manuscript of reading from scanner feeding opening.

0006] This invention is made in view of the trouble of the above-mentioned conventional technique, and aims at offering the paper leaf processor of arrangement of a printer and a scanner, and a scanner which reads a part with print-out paper cheaply certainly by amelioration of components, and can prevent a jumble of a manuscript, and incorrect reading.

Translation done.]

MEANS

Means for Solving the Problem] A medium tray for this invention for attaining the above-mentioned purpose to be the paper leaf processor which piled up the 1st paper leaf processing means and the 2nd paper leaf processing means up and down, and made the conveyance direction of paper the reverse sense, and for said 1st paper leaf processing means feed paper to paper, It has a paper width regulation means to regulate Kami's location in a right-angled direction. a medium tray top – it is – the feed direction and abbreviation – said 2nd paper leaf processing means The delivery opening is the medium tray upper part of said 1st paper leaf processing means, and it is characterized by being arranged so that paper may be delivered above said at least one paper width specification-part material.

0008] In this paper leaf processor, what is characterized by a document reading means and said 2nd paper leaf processing means of said 1st paper leaf processing means being record means, and said 1st paper leaf processing means may be characterized by a record means and said 2nd paper leaf processing means being document reading means.

0009] Furthermore, what is characterized by preparing feed opening in said 1st paper leaf processing means and delivery opening in said 2nd paper leaf processing processing means in the side which faces each other with a user at the time of use is desirable.

Translation done.]

OPERATION

[Function] In this invention constituted as above-mentioned, since paper is delivered above the paper width specification-part material of the 1st paper leaf processing means to the paper to which paper was delivered from delivery opening of the 2nd paper leaf processing means located in the medium tray upper part of the 1st paper leaf processing means, in order to feed paper to the 1st paper leaf processing means concerned, on a medium tray, to the paper regulated by paper width specification-part material, it shifts and is deposited. Thereby, Kami who processes with the 1st paper leaf processing means, and Kami processed by the 2nd paper leaf processing means do not blend.

[0011] Furthermore, if feed opening in the 1st paper leaf processing means and delivery opening in the 2nd paper leaf processing means are prepared in the front face of equipment which faces each other with a user at the time of use, a refreshed front appearance without a feeling of oppression is constituted.

Translation done.]

EXAMPLE

Example] Hereafter, the example of this invention is explained with reference to a drawing.

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0015] First, the scanner section is explained.

0016] The scanner section was located in the bottom in a case 1, and was read to the side (henceforth "the front face of equipment") which faces a user at the time of use, and the medium tray 2 for feeding of a manuscript has projected it. a medium tray 2 -- the travelling direction of a manuscript, and abbreviation -- the paper width guide (left) 3 and the paper width guide (right) 4 which prevent that regulate the right-angled cross direction and a manuscript is conveyed in the state of slant are attached possible [a slide]. Since it has the device [**** / the after-mentioned] which slides the paper width guide (left) 3 and the paper width guide (right) 4 to right and left on the basis of the core of the guide width of face, another side also interlocks by moving either the paper width guide (left) 3 or the paper width guide (right) 4 by hand.

0017] Drawing which looked at the device from the background of the medium tray 2 which has the paper width guide (left) 3 and the paper width guide (right) 4 in drawing 3 is shown.

0018] The paper width guide (left) 3 is being fixed to the rack 8 and one which were connected with bosses 5 and 6 on both sides of the tray 2 while the bosses 5 and 6 fit in with **** 7 of a tray 2 and are constituted by right and left free [a slide]. On the other hand, the paper width guide (right) is being similarly fixed to a rack 11 and one free [a slide] through the bosses 9 and 10. Since that rack gear section has geared with the gear 12 supported free [rotation] in the center of a tray rear face, these racks 8 and 11 serve as a device which the rack of another side slides through a gear 12, if one rack slides. That is, if either the paper width guide (left) 3 or the paper width guide (right) 4 is made to slide, another side will also be moved to an opposite direction at the equal distance.

0019] the scanner conveyance roller pair after being separated for every sheet by the separation pad 13 and the separation roller 14 which had the cross direction regulated by drawing 2 according to return and the above-mentioned device and with which it read and the manuscript has been arranged to the case 1 interior -- it is led to 15 and 16. a scanner conveyance roller pair -- the rotation drive of 15 and 16 is carried out by the non-illustrated motor so that a manuscript may be conveyed at a predetermined reading rate in the reading sensor 17 top.

0020] The reading sensor 17 consists of the light source and a photo-electric-conversion element array, electrical-signal-izes light-and-darkness (black and white) information on the manuscript which moves at the rate of predetermined, and reads it. There is a white platen 18 for determining the brightness of the criteria of the white for reading as float prevention of a manuscript in the side which faces on both sides of the reading sensor 17 and a manuscript, this reads and grace is maintained. the -- further -- them -- a scanner delivery roller pair -- 19 and 20 are prepared and a manuscript is delivered to the scanner paper output tray 21 with which case 1 back was equipped.

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0022] Although the printer section is located in the upper part of the scanner section mentioned above, the travelling direction of paper is opposite to the scanner section. well-known pawl separation carries out with the pawl which is not illustrated [which has a medium tray 23 in case 1 back, is in the semicircle roller 24 and a tray 23, and starts Kami's single-sided edge] -- having -- every sheet -- a printer conveyance roller pair -- it is sent out to 25 and 26. 25 and 26 lead paper on printer conveyance roller pair the ink jet head 28 and the printing platen 27 which counters, convey paper to every [of the ink jet head 28] print width W, and wait for the next printing.

0023] the slide shafts 29 and 30 of a pair with which the ink jet head 28 was supported in parallel with right and left (it is perpendicularly to space at drawing 2) of a case 1 -- meeting -- a round trip -- it is movable and driving force can be given with non-illustrated a motor and a belt, and an ink droplet is flown and printed on space with print width W, moving to left-hand side from the right-hand side of the case 1 shown in drawing 1. after printing of width of face W and conveyance of Kami of width of face W are repeated by turns and end all printing of desired image information -- a printer delivery roller pair -- it is discharged by 31 and 32 besides a case 1.

0024] Drawing 4 shows the physical relationship of feeding-and-discarding **** of the equipment of this example seen from the direction of A of drawing 2.

0025] The ink jet head 28 needs to take the cure of capping a nozzle part at the time of un-printing, in order to prevent getting dry and getting ink blocked in the nozzle part at a tip, or breathing out ink from all nozzles or every several printing. Therefore, as shown in drawing 4, this kind of ink plugging prevention device 33 is arranged outside the printing area by the side of a printing starting position, in order to make into the minimum the loss of the time amount which printing takes, and is made into the single-sided conveyance criteria whose above-mentioned loss does not increase with the size of a print form and which fixed the printing starting position side like.

0026] Moreover, feeding of the scanner section covers the paper size from 148mm of minimum A5 width of ace to $216+2=218$ mm of maximum size letter width of face on main criteria by the medium tray 2, as shown in drawing 4. On the other hand, although paper is conveyed and delivered to paper on the basis of the drawing 4 Nakamigi side B in the printer section, paper size covers 148-218mm from A5 to a letter like the scanner section.

0027] The conveyance criteria B of the printer section are arranged outside the location of the right guide 4 at the time of the maximum paper size (218mm) of the scanner section, or the minimum paper size (148mm). Furthermore, there is a location at the left end of the printer maximum paper size (or the minimum paper size) B and opposite side) inside the left guide 3 at the time of the maximum paper size (or the minimum paper size) of the scanner section. By this, the paper to which paper is delivered from the printer section will fall after the right guide 4 of the scanner section.

0028] Although drawing 5 shows the situation of the equipment side face in which paper was delivered to paper from the printer section, as shown in the two-dot chain line in this drawing, since the print paper 34 to which paper was delivered shifts from a manuscript 35 and is deposited after the right guide 4, it is not mixed with the manuscript 35 conveyed to the scanner section. Even if it falls in the location where the print paper 34 exceeded the right guide 4, and separated from the case 1, when it is dragged by the scanner manuscript, it will be stopped in the right guide 4 and does not result in incorrect reading by the scanner section.

0029] Although this example gave and explained the example by which the printer section had been arranged in the upper part and the scanner section has been arranged at the lower part, if it constitutes so that the discharge manuscript of a scanner may accumulate on the feed guide of a printer also when the scanner section had been arranged in the upper part and the printer section has been arranged at the lower part, it can prevent a jumble of feeding.

0030] Furthermore, although the scanner side was made into main criteria and the printer side was made into single-sided criteria in the conveyance criteria of paper, if it is made the arrangement whose upper discharge paper may make a scanner side into single-sided criteria, and may make a printer side into main criteria conversely, or surely deposits both sides on a downward feed guide also as main criteria or single-sided criteria, the main point of this invention will not be spoiled.

0031] Moreover, although what has the scanner section and the printer section as an example of the paper leaf processor of this invention was mentioned, if the reading methods (for example, CCD reading using contraction optical system etc.) of the scanner section and the printing methods (for example, a laser beam method, a hot printing method, etc.) of the printer section include a paper leaf conveyance means, other things, such as a printing machine and a mark sheet reader, are available [printing methods / its various things are available, and] in this invention.

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